DEPARTMENT of ENVIRONMENTAL SERVICES
Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake:	CALDWELL POND	Lake Area (ha):	11.49
Town:	ALSTEAD	Maximum depth (m):	16.8
County:	Cheshire	Mean depth (m):	3.5
River Basin:	Connecticut	Volume (m^3):	397000
Latitude:	43°04'42" N	Relative depth:	3.7
Longitude:	72°18'24" W	Shore configuration:	1.33
Elevation (ft):	1271	Areal water load (m/yr):	3.15
Shore length (m):	1600	Flushing rate (yr^{-1}):	0.90
Watershed area (ha):	75.1	P retention coeff.:	0.74
% watershed ponded:	0.0	Lake type:	natural w/dam

BIOLOGICAL:		27 February 2002	9 August 2001
DOM. PHYTOPLANKTON (% TOTAL)	#1	DINOBRYON 65%	CHRYSOSPHAERELLA 50%
	#2	UROGLENOPSIS 20%	MOUGEOTIA 25%
	#3		PERIDINIUM 15%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			2.39
DOM. ZOOPLANKTON (% TOTAL)	#1	CHROMOGASTER 26%	BOSMINA 39%
	#2	KERATELLA 23%	GASTROPUS 23%
	#3	POLYARTHRA 23%	POLYARTHRA 11%
ROTIFERS/LITER		50	25
MICROCRUSTACEA/LITER		20	31
ZOOPLANKTON ABUNDANCE (#/L)		70	56
VASCULAR PLANT ABUNDANCE			Very abundant
SECCHI DISK TRANSPARENCY (m)			5.2
BOTTOM DISSOLVED OXYGEN (mg/L)		8.7	13.1
BACTERIA (E. coli, #/100 ml)	#1		< 1
	#2		< 1
	#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 6.0
Hypolimnion volume (m^3) : 14500
Anoxic volume (m^3) : None

CHEMICAL: Lake: CALDWELL POND
Town: ALSTEAD

	27 February 2002		9 August 2001		
DEPTH (m)	3.0	6.0	1.5	5.0	11.0
pH (units)	5.6	5.6	6.1	5.9	5.6
A.N.C. (Alkalinity)	0.5	0.8	0.6	0.6	0.7
NITRATE NITROGEN	< 0.05	< 0.05	< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.10	0.20	0.20	0.30	0.20
TOTAL PHOSPHORUS	0.007	0.007	0.007	0.007	0.005
CONDUCTIVITY (µmhos/cm)	17.6	16.5	14.4	14.6	16.1
APPARENT COLOR (cpu)	< 5	< 5	5	5	< 5
MAGNESIUM			0.19		
CALCIUM			< 1.0		
SODIUM			< 1.0		
POTASSIUM			< 0.40		
CHLORIDE	< 3	< 3	< 2		< 2
SULFATE	4	4	4		4
TN : TP	14	29	29		40
CALCITE SATURATION INDEX					

All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2001

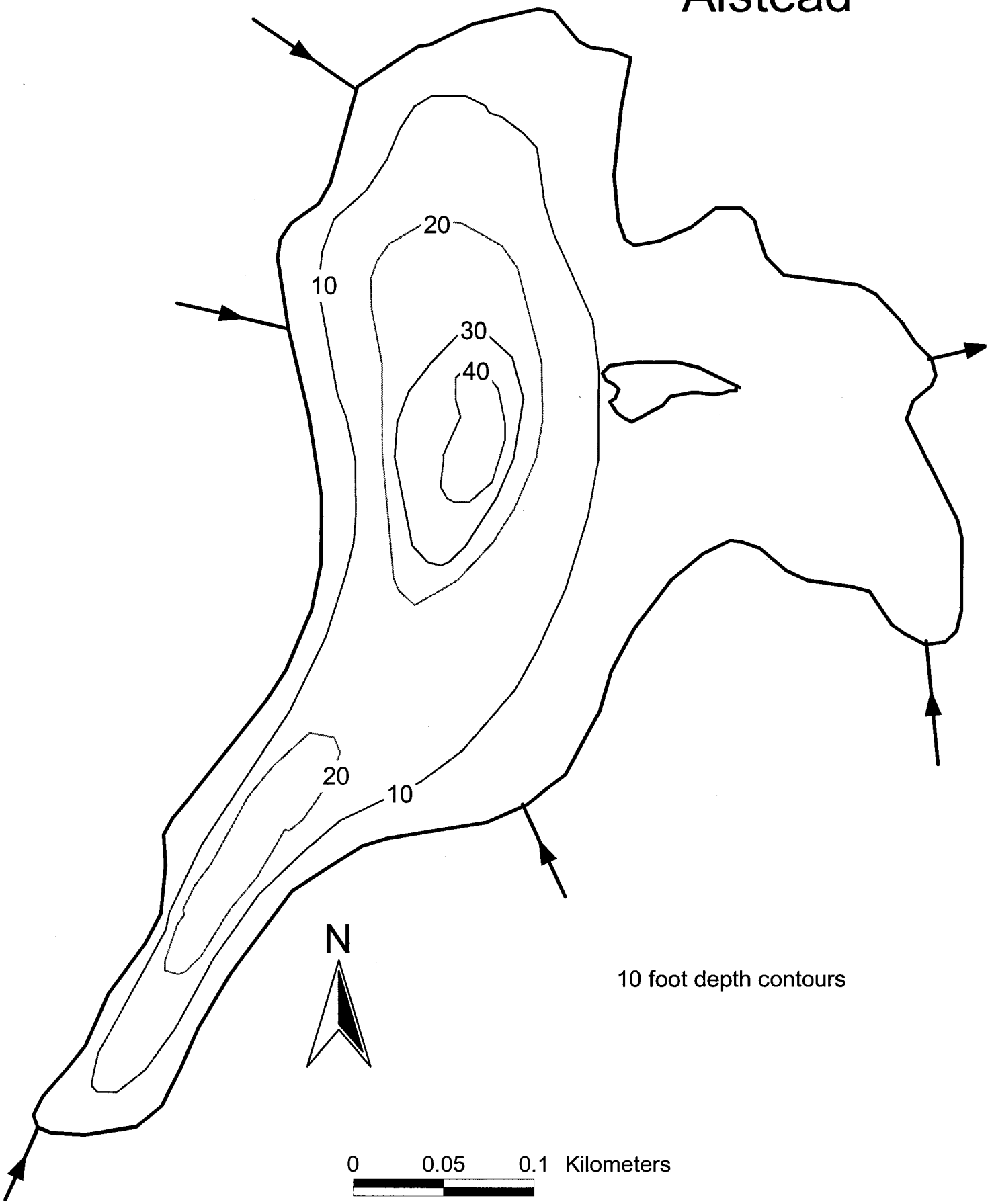
D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
0	1	6	0	7	Meso.

COMMENTS:

1. A state boat access was present but all the land around the pond is owned by the Timber Owners of New England, Inc.
2. This pond was previously surveyed in 1983 and was the subject of an acid deposition impact study in 1980-82. Three major water quality changes occurred during this 20-year period.
   a. The pH was consistently around 5.0 in the early 1980s with values as low as 4.5. The pH of approximately 6.0 in 2001 is 10 times less acidic than the 1980 5.0 value and is an unexpected change. Such a change would not be expected unless the pond was artificially limed. The alkalinity remains extremely low.
   b. Bladderwort, a non-rooted, native carnivorous plant was scattered in 1983 and was very abundant in 2001 – in nuisance amounts.
   c. The Secchi disk transparency value of 5.2 meters in 2001 is good but was much less than the 13m in the 1983 survey or the greatest value in the 1980-82 study of 14.5m. The 14.5 reading is the greatest recorded transparency reading in NH lakes.

   The reason for these changes in water quality is not known.
3. The calcite saturation index could not be calculated because the calcium was below detectable.

Caldwell Pond
Alstead



FIELD DATA SHEET

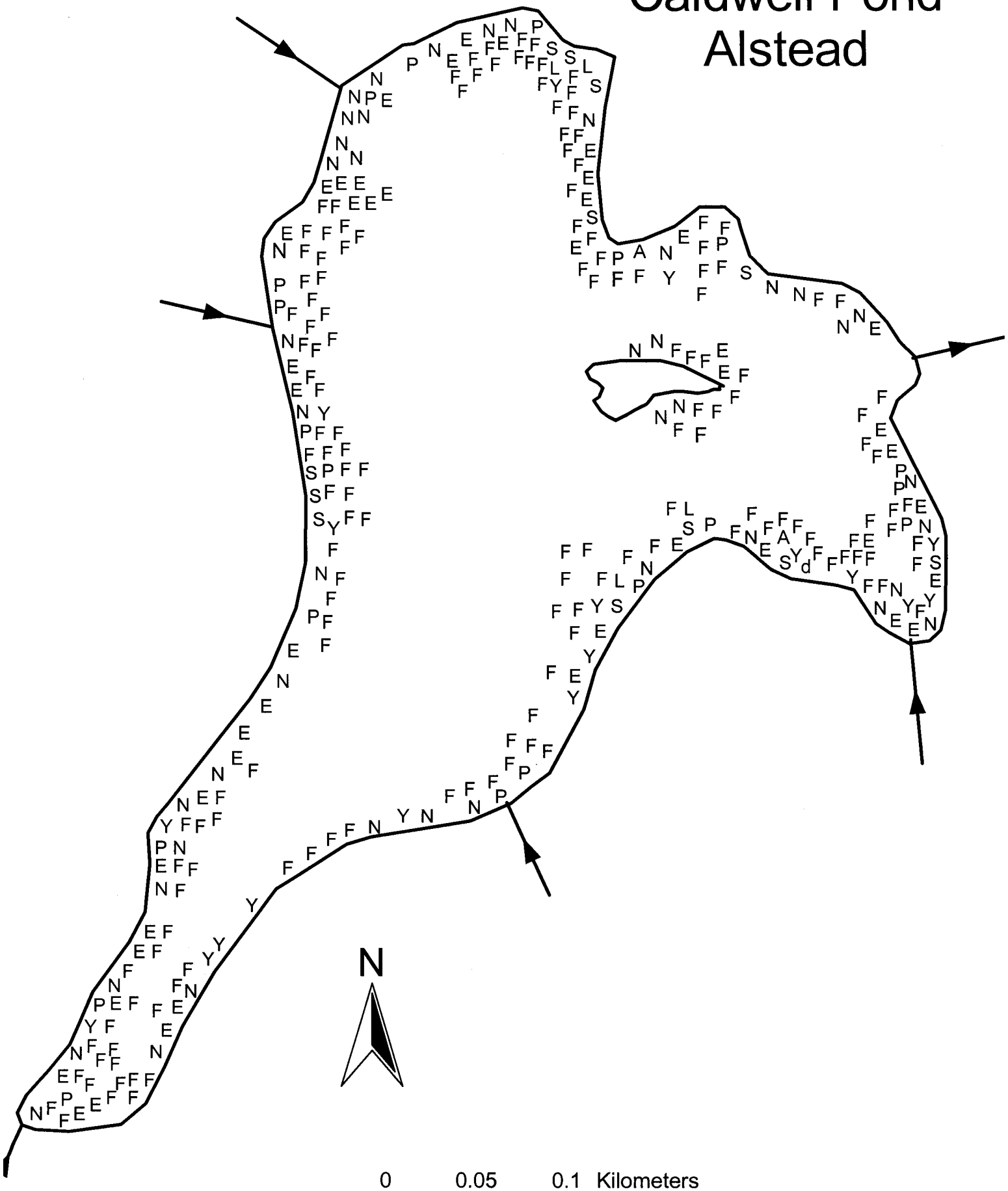
LAKE: CALDWELL POND TOWN: ALSTEAD
DATE: 08/09/2001 WEATHER: Warm, breezy & partly cloudy

	DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
	0.1	26.9	8.1	102 %
	1.0	26.8	8.2	102 %
	2.0	26.7	8.1	102 %
	3.0	26.4	8.0	99 %
	4.0	25.1	8.6	104 %
	5.0	23.9	9.4	112 %
	6.0	19.8	12.6	138 %
	7.0	16.2	12.5	127 %
	8.0	13.0	13.4	127 %
	9.0	11.1	13.3	121 %
	10.0	9.9	13.2	117 %
	11.0	9.0	13.2	114 %
	11.5	8.7	13.1	113 %

SECCHI DISK (m): 5.2 COMMENTS:
BOTTOM DEPTH (m): 12.0
TIME: 1130

*Dissolved oxygen values are in mg/L

Caldwell Pond
Alstead



AQUATIC PLANT SURVEY

LAKE: CALDWELL POND TOWN: ALSTEAD DATE: 08/09/2001

Key	PLANT NAME		ABUNDANCE
	GENERIC	COMMON	
F	Nymphoides cordatum	Floating heart	Common
E	Eriocaulon septangulare	Pipewort	Scattered
N	Nymphaea	White water lily	Scattered
P	Pontederia cordata	Pickerelweed	Scattered
A	Sagittaria	Arrowhead	Scattered
S	Sparganium	Bur reed	Scattered
Y	Nuphar	Yellow water lily	Scattered
L	Lobelia dortmanna	Water lobelia	Sparse
d	Dulichium arundinaceum	Three-way sedge	Sparse
U	Utricularia	Bladderwort	Very abundant

OVERALL ABUNDANCE: Very abundant

GENERAL OBSERVATIONS:

1. The entire visible bottom was covered with bladderwort with large floating masses of the plant around the shoreline. Bladderwort is not depicted on the map because its abundance would mask the other plants.